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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,602	09/28/2006	Shuji Ikegami	4633-0184PUS1	4872
2292 7590 12/11/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER DUONG, THO V	
			ART UNIT 3744	PAPER NUMBER
			NOTIFICATION DATE 12/11/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/594,602		IKEGAMI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Tho v. Duong		3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/28/06; and 11/19/07</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami et al. (JP 2004085013) in view of Yokota et al. (JP 072655649). Fujinami discloses (figures 1-2) a heat exchanger comprising a fin set including a plurality of fins (12) arranged parallel to each other with an interval (fin pitch) of 1.6 to 2.0 mm; a framework (3) arranged to surround end faces of the fin set in the arrangement direction of the fins and end faces of the fin set in the lengthwise direction of the fin; a serpentine heat transfer tubes (11) having straight part penetrating the fin set in the arrangement direction of the fins and U-shaped parts protruding out of the framework; a connecting tube for connecting the heat transfer tubes (11) with a refrigerant pipe. Fujinami does not disclose adsorbents are supported on the surfaces of the fin set, the framework, the heat transfer tube and the connector tube. Yokota (figures 1-2) teaches of coating absorbing material (3) on an entire surface of heat exchanger components such as tube (1) and fins (2) for a purpose of dehumidifying air passing through the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Yokota's teaching for a purpose of dehumidifying air passing through the heat exchanger. With regards to the subject matter of the adsorbents coated on the framework and the connector

tube, it would have been obvious to one ordinary skill in the art to try to further coat the adsorbents on the framework and the connector tube as well as the tube and the fins (as taught by Yokota) in order to further dehumidify the air that is in contact with the framework and the connector tubes so that the overall dehumidifying capacity of the heat exchanger is enhanced. Regarding claim 6, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In this instant case, the air with an intended velocity passing through the heat exchanger structure being claim does not impart patentability to the claims since the combination device of Fujinami and Yokota still reads on the claimed heat exchanger structure.

Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami et al. (JP 2004085013) in view of Vondobain (DE 32226502A). Fujinami discloses (figures 1-2) a heat exchanger comprising a fin set including a plurality of fins (12) arranged parallel to each other with an interval (fin pitch) of 1.6 to 2.0 mm; a framework (3) arranged to surround end faces of the fin set in the arrangement direction of the fins and end faces of the fin set in the lengthwise direction of the fin; a serpentine heat transfer tubes (11) having straight part penetrating the fin set in the arrangement direction of the fins and U-shaped parts protruding out of the framework; a connecting tube for connecting the heat transfer tubes (11) with a refrigerant pipe. Fujinami does not disclose adsorbents are supported on the surfaces of the fin set, the

framework, the heat transfer tube and the connector tube. Vondobein (figures 1-2) teaches of coating absorbing material on an entire surface of heat exchanger components such as coil (12) fins (14) and spacers (22) for a purpose of dehumidifying air passing through the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Vondobein's teaching for a purpose of dehumidifying air passing through the heat exchanger. With regards to the subject matter of the adsorbents coated on the framework and the connector tube, it would have been obvious to one ordinary skill in the art to try to further coat the adsorbents on the framework and the connector tube, which are also heat exchanger components in contact with air, in order to further dehumidify the air that is in contact with the framework and the connector tubes so that the overall dehumidifying capacity of the heat exchanger is enhanced. Regarding claim 6, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault* 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In this instant case, the air with an intended velocity passing through the heat exchanger structure being claim does not impart patentability to the claims since the combination device of Fujinami and Vondobein still reads on the claimed heat exchanger structure.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami and Yokota or Vondabein as applied to claim 1 above, and further in view of Dunne. Fujinami and

Yokota substantially disclose all of applicant's claimed invention as discussed above except the thickness of the adsorbent coating on fin. Dunne discloses (figures 1-2 and column 7, lines 1-5) a heat exchanger that has an adsorbent layer coating on a fin with a thickness of 230 microns for a purpose of not causing bridging of the adsorbent to occur between fins of the finned tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Dunne's teaching in the combination device of Fujinami and Yokota for a purpose of not causing bridging of the adsorbent to occur between fins of the finned tube.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rhodes (US 4,793,143) discloses an enthalpic heat pump desiccant air conditioning system.

Yoho et al. (US 5,582,241) discloses a heat exchanging fins with fluid circulation lines there within.

Rhodes (US 4,786,301) discloses a desiccant air conditioning system.

Maier –Laxhuber et al. (US 5,585,145) discloses adsorbent bed coating on metals.

Harada et al. (US 3,916,989) discloses a heat exchanger.

Yabu (US 2006/0207429) discloses a humidity control apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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TD  
November 30, 2007

  
Tho v Duong  
Primary Examiner  
Art Unit 3744